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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/597,371

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Eric Maziers

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EXAMINER

DUONG, THO V

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

07/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,371	Applicant(s) MAZIER, ERIC	
	Examiner Tho v. Duong	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/4/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 8, the claimed subject matter of "in the direction of the aperture" renders the scope of the claim indefinite since the aperture has no direction. Regarding claim 9, the claimed subject matter of "the measurement of the deflecting sidewall is smaller than the measurement of the associated diverting conformation" renders the scope of the claim indefinite since it is not clear whether applicant is claiming the size such as height, width or else of the sidewall is smaller than the size of the diverting conformation. Regarding claim 1, applicant is reminded that, in order for a claim limitation using the phrase "means for" or "step for" to be interpreted as invoking 35 U.S. C 112, sixth paragraph, the phrase "means for" or "step for" must not be modified by structure, material or acts for achieving the specified function. In claim 1, the limitation "means for (7) is modified by structural limitation (i. e, diverting conformations (10,11)) and is thus not being interpreted as invoking 35 U.S.C. 112 sixth paragraph.

Claim 4 recites the limitation "the distal edge" and "the proximal edge" in lines 4 and 5. There is insufficient antecedent basis for this limitation in the claim.

Claims 1-11 are further rejected as can be best understood by the examiner.

Claim Rejections - 35 USC § 102

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,9 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Alfred Matthew Martin (GB 576864). Martin discloses (figures 1-2) a metal fin (1) for tube heat exchanger comprising a series of collars (C) mounting tubes; diverting conformations (d) arranged on both upstream and down stream sides of the tube; the upstream and downstream diverting conformations (d) of two superimposed apertures belong to one same column (1-1) extending along a determined length so that substantially rejoin at the plane of extension of staggered tube belong to an intermediate row with respect to the upstream and downstream rows to which the superimposed tube belong; each diverting conformation projects on one side of the fin and is recessed on the other side of the fin. . Regarding claim 2, the functional recitation “so that...between 0.016 and 0.008 m² K/W respectively" is a functional recitation, since the prior art of Bakay reads on the structure as claimed it is capable of performing the function as well.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bakay et al. (US 4,830,102) in view of J. Karmazin (US 1,775,041). Bakay discloses (figure 3) a fin (2'') for tube heat exchanger comprising a series of collars (3); diverting conformations (4-9) arranged on both upstream and down stream sides of the tube; the upstream and downstream diverting conformations (4-9) of two superimposed apertures belong to one same column extending along a determined length so that substantially rejoin at the plane of extension of staggered tube belong to an intermediate row with respect to the upstream and downstream rows to which the superimposed tube belong; the upstream diverting conformation and the downstream diverting conformation for one same aperture have mirror symmetry with respect to the plane of extension perpendicular to the direction of air flow. Regarding claim 4, the diverting conformation has a triangle profile at both ends, the top apex of the triangle is considered to be a distal edge and the base of the triangle is considered to be an proximate edge, wherein the down stream diverting conformation such as (5-6) are increasing inclined from the distal edge to the proximate edge (angle side of the triangle), and wherein the width of each diverting conformation increase from its distal edge to its proximate edge (triangle shape); each diverting conformation is extended from its proximate edge in the direction of the aperture by a deflecting side wall (4), which is smaller than the whole diverting conformation; the diverting conformation projects on one side of the fin (raised portion 4) and is recessed on the other side of the fin. Regarding claim 2, the functional recitation "so that...between 0.016 and 0.008 m² K/W respectively" is a functional recitation, since the prior art of Bakay reads on the structure as claimed it is capable of performing the function as well. Bakay does not disclose that the fin is metal and the diverting conformation has a curved profile in a transverse direction with respect

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to the direction of flow. Karmazin discloses (figures 14-19 and page 2, lines 30-35) a heat exchanger fin (34) that is made of metal for a purpose of enhancing the heat transfer rate of the tube to the environment since metal has a high heat conductivity. Furthermore, Karmazin discloses that the diverting conformation (35) has a curved profile in a transverse direction with respect to the direction of flow for a purpose of directing the air flow with minimum pressure loss. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Karmazin's teaching in Bakay's device for a purpose of enhancing the heat transfer rate of the tube to the environment and directing the air flow with minimum pressure loss.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bakay in view of Karmazin as applied to claims 1-5 above, and further in view of Torii (US 2004/0194936A1). Bakay and Karmazin substantially disclose all of applicant's claimed invention as discussed above except for the limitation that the diverting conformation has a substantially semi-elliptical contour. Torii discloses (figures 1 and 9E) a diverting conformation (10) has a substantially semi-elliptical contour for a purpose of further minimizing the pressure loss of air flowing over the fin. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Torri's teaching in the combination device of Bakay and Karmazin for a purpose of further minimizing the pressure loss of air flowing over the fin.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Liu et al. (US 6,349,761) discloses a fin tube heat exchanger with vortex generator.

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Lu (US 4,434,846) discloses a pattern heat exchanger fin.

Gopin (US 5,318,112) discloses a finned duct heat exchanger.

Rew et al. (US 5,628,362) discloses a fin tube heat exchanger.

R. Pintarelli (US 2,804,286) discloses radiator fins.

Liu et al. (US 6,578,627) discloses a pattern with ribbed vortex generator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tho v Duong/
Primary Examiner, Art Unit 3744

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